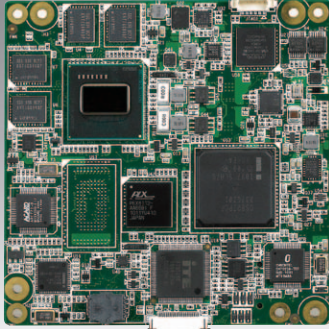# SOM-6764
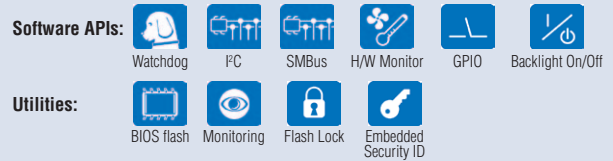
Intel® Atom™ Processor E6xx Series COM-Express Compact Module

NEW

Features

- Embedded Intel® Atom™ processor E6xx series up to 1.6 GHz
- Supports on board 1 GB DDR2 memory
- Supports PCI, 1 PCIe x 1, 1 SATA, 1 IDE, 6 USB
- Operating temperature: -40 ~ 85° C
- Supports Advantech iManager and software APIs

Software APIs: Watchdog | I²C | SMBus | H/W Monitor | GPIO | Backlight On/Off

Utilities: BIOS flash | Monitoring | Flash Lock | Embedded Security ID

Windows Embeddec | iManager | CE FCC

Specifications

Form Factor		COM-Express 2.0 Compact Module Type 2 Pin-out
Processor System	CPU	Intel Atom E620(T) 600 MHz / E640(T) 1.0 GHz / E660(T) 1.3 GHz / E680(T) 1.6 GHz
	L2 Cache	512 KB
	System Chipset	Intel Atom Processor E6xx Series + Input/Output Hub EG20T
	BIOS	AMI 16 Mbit Flash BIOS
Memory	Technology	DDR2 667/800 MHz memory
	Max. Capacity	Onboard 1 GB memory
	Socket	N/A
Display	Chipset	Intel Atom processor E6xx series integrated graphic controller
	Graphics Engine	2D/3D graphic engine
	LVDS	24-bit single channel LVDS
	VGA	Yes
	DVI	N/A
	TV Out	N/A
	SDVO	(optional)
	Dual Display	LVDS + VGA or LVDS + SDVO
Ethernet	Chipset	Intel 82574 Gigabit Ethernet for industrial temperature
	Speed	10/100/1000 Mbps
WatchDog Timer		65536 level timer interval, from 0 ~ 65535 sec, multi-level, multi-option watchdog timer
Expansion		1 PCIe x1, PCI, LPC, SPI, SMBus, I2C, CANBus (Optional)
I/O	PATA	1 IDE Channel
	SATA	1 SATA (optional for 2 SATA)
	USB	6 USB 2.0
	Audio	High definition audio interface
	GPIO	8-bit GPIO
	Serial Port	1 UART up to 115.2K bps (Optional)1 CANBus (Optional)
Power	Power Type	ATX, AT
	Power Supply Voltage	+12 V and +5 V for ATX, +12 V for AT
	Power Consumption (Typical)	TBD
	Power Consumption (Max, test in HCT)	TBD
Environment	Operating Temperature	-40 ~ 85° C
	Operating Humidity	0% ~ 90% relative humidity, non-condensing
Mechanical	Dimensions	95 x 95 mm (3.74" x 3.74")

Board Diagram
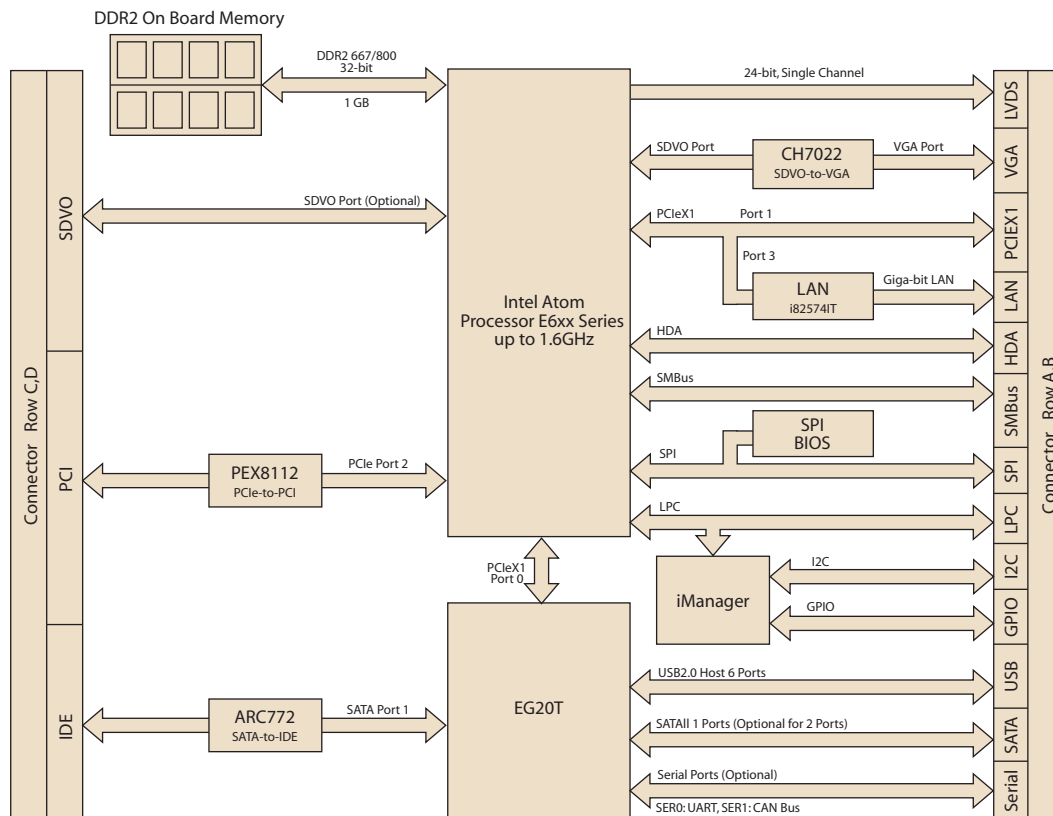
Ordering Information

Part No.	CPU	Cache	Chipset	Onboard Memory	LVDS	VGA	SDVO	Giga LAN	HD Audio	PCIe x1	PCI	USB 2.0	SATA2	IDE	LPC	SMBus	Power	Thermal Solution	Operating Temp.
SOM-6764Z2-M0A1E	600 MHz	512 KB	EG20T	1 GB	24-bit	Yes	Optional	1	Yes	1	4	6	1	1	1	1	AT/ATX	Passive	-40 ~ 85° C
SOM-6764Z2-S0A1E	1.0 GHz	512 KB	EG20T	1 GB	24-bit	Yes	Optional	1	Yes	1	4	6	1	1	1	1	AT/ATX	Passive	-40 ~ 85° C
SOM-6764Z2-S3A1E	1.3 GHz	512 KB	EG20T	1 GB	24-bit	Yes	Optional	1	Yes	1	4	6	1	1	1	1	AT/ATX	Passive	-40 ~ 85° C
SOM-6764Z2-S6A1E	1.6 GHz	512 KB	EG20T	1 GB	24-bit	Yes	Optional	1	Yes	1	4	6	1	1	1	1	AT/ATX	Passive	-40 ~ 85° C
SOM-6764FG-M0A1E	600 MHz	512 KB	EG20T	1 GB	24-bit	Yes	Optional	1	Yes	1	4	6	1	1	1	1	AT/ATX	Passive	0 ~ 60° C
SOM-6764FG-S0A1E	1.0 GHz	512 KB	EG20T	1 GB	24-bit	Yes	Optional	1	Yes	1	4	6	1	1	1	1	AT/ATX	Passive	0 ~ 60° C
SOM-6764FG-S3A1E	1.3 GHz	512 KB	EG20T	1 GB	24-bit	Yes	Optional	1	Yes	1	4	6	1	1	1	1	AT/ATX	Passive	0 ~ 60° C
SOM-6764FG-S6A1E	1.6 GHz	512 KB	EG20T	1 GB	24-bit	Yes	Optional	1	Yes	1	4	6	1	1	1	1	AT/ATX	Passive	0 ~ 60° C

Development Board

Part No.	Description
SOM-DB5700G-00A2E	Development Board for COM-Express Type 2

Optional Accessories

Part No.	Description
1960048815N001	Semi-Heatsink 95 x 95 x17 mm

Packing List

Part No.	Description	Quantity
-	SOM-6764 CPU Module	1
-	Utility CD	1
TBD	Heatspreader	1

Value-Added Software Services

Software API: An interface that defines the ways by which an application program may request services from libraries and/or operating systems. Provides not only the underlying drivers required but also a rich set of user-friendly, intelligent and integrated interfaces, which speeds development, enhances security and offers add-on value for Advantech platforms. It plays the role of catalyst between developer and solution, and makes Advantech embedded platforms easier and simpler to adopt and operate with customer applications.

Software APIs

Control

GPIO

General Purpose Input/Output is a flexible parallel interface that allows a variety of custom connections. It allows users to monitor the level of signal input or set the output status to switch on/off a device. Our API also provides Programmable GPIO, which allows developers to dynamically set the GPIO input or output status.

SMBus

SMBus is the System Management Bus defined by Intel® Corporation in 1995. It is used in personal computers and servers for low-speed system management communications. The SMBus API allows a developer to interface a embedded system environment and transfer serial messages using the SMBus protocols, allowing multiple simultaneous device control.

I²C

I²C is a bi-directional two wire bus that was developed by Philips for use in their televisions in the 1980s. The I²C API allows a developer to interface with an embedded system environment and transfer serial messages using the I²C protocols, allowing multiple simultaneous device control.

Display

Brightness Control

The Brightness Control API allows a developer to interface with an embedded device to easily control brightness.

Backlight

The Backlight API allows a developer to control the backlight (screen) on/off in an embedded device.

Monitor

Watchdog

A watchdog timer (WDT) is a device that performs a specific operation after a certain period of time if something goes wrong and the system does not recover on its own.
A watchdog timer can be programmed to perform a warm boot (restarting the system) after a certain number of seconds.

Hardware Monitor

The Hardware Monitor (HWM) API is a system health supervision API that inspects certain condition indexes, such as fan speed, temperature and voltage.

Hardware Control

The Hardware Control API allows developers to set the PWM (Pulse Width Modulation) value to adjust fan speed or other devices; it can also be used to adjust the LCD brightness.

Power Saving

CPU Speed

Make use of Intel SpeedStep technology to reduce power power consumption. The system will automatically adjust the CPU Speed depending on system loading.

System Throttling

Refers to a series of methods for reducing power consumption in computers by lowering the clock frequency. These APIs allow the user to lower the clock from 87.5% to 12.5%.

Software Utilities
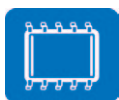
BIOS Flash

The BIOS Flash utility allows customers to update the flash ROM BIOS version, or use it to back up current BIOS by copying it from the flash chip to a file on customers' disk. The BIOS Flash utility also provides a command line version and API for fast implementation into customized applications.

Embedded Security ID

The embedded application is the most important property of a system integrator. It contains valuable intellectual property, design knowledge and innovation, but it is easily copied! The Embedded Security ID utility provides reliable security functions for customers to secure their application data within embedded BIOS.

Monitoring

The Monitoring utility allows the customer to monitor system health, including voltage, CPU and system temperature and fan speed. These items are important to a device; if critical errors happen and are not solved immediately, permanent damage may be caused.

eSOS

The eSOS is a small OS stored in BIOS ROM. It will boot up in case of a main OS crash. It will diagnose the hardware status, and then send an e-mail to a designated administrator. The eSOS also provides remote connection: Telnet server and FTP server, allowing the administrator to rescue the system.

Flash Lock

Flash Lock is a mechanism that binds the board and CF card (SQFlash) together. The user can "Lock" SQFlash via the Flash Lock function and "Unlock" it via BIOS while booting. A locked SQFlash cannot be read by any card reader or boot from other platforms without a BIOS with the "Unlock" feature.